

Sebastián Carrazco Gaxiola

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Atlanta, GA, USA

Education

Georgia State University, Atlanta, GA

Ph.D. in Astronomy (Expected Fall 2027)

Fall 2022 - Present

Department of Physics and Astronomy

- Project: Stellar Characterization of All-Sky Volume Limited sample of K dwarfs within 40 pc.
- Advisor: Todd J. Henry

Georgia State University, Atlanta, GA

M.S. in Physics, Concentration in Astronomy

Fall 2022 - Summer 2024

Department of Physics and Astronomy

Universidad Autónoma de Sinaloa, Culiacán, Sinaloa

B.S. in Astronomy (Graduated with Honors)

Fall 2016 - Spring 2021

A.S. in Geosciences (Surveying and Topography)

Facultad de Ciencias de la Tierra y el Espacio

- Honor Thesis: *Preliminary Study of the TAOS-II and DDOTI Projects to Search for Transiting Exoplanets from the OAN-SPM*
- Advisor: Yilen Gómez Maqueo Chew and Emma Margarita Pereyra Talamantes

Research Experience

CTIO/SMARTS 1.5m Telescope Fellow,

January 2023 - Present

RECONS Institute, Chambersburg, PA

- CHIRON Spectrograph support. Tasks: Manage observing queue, provide scientific and technical support for users, assist with telescope operations in coordination with CTIO staff. Telescope observer for 2-3 two weeks turnos a year.

Graduate Research Assistant,

August 2022 - Present

Department of Physics and Astronomy, Georgia State University

- RKSTAR Characterization Survey. Leading the stellar Characterization of an All-Sky volume-complete sample of K dwarfs within 40 pc. Surveying Space Kinematics, Chromospheric Activity, Fundamental Properties, and Ages.

Post-bac Research Assistant,

January 2022 - July 2022

Instituto de Astronomía, UNAM, Mexico City

- Member of the SAINT-EX project at the San Pedro Mártir Observatory. Conducted remote observations. Developed data pipelines to analyze the nightly systematic and weather conditions during the acquisition of light curves of potential exoplanet candidates.

Undergraduate Research Assistant,

August 2019 - December 2021

Instituto de Astronomía, UNAM, Mexico City

- *Thesis*: Preliminary Study of the TAOS-II and DDOTI Projects to Search for Transiting Exoplanets: Investigated exoplanetary candidates through the analysis of white dwarf stars, utilizing data from the TAOS-II survey and DDOI archive. Developed reduction pipelines and analyzed light curves to identify potential exoplanet transits.

Teaching

TA — Physics & Astronomy Lab Instructor 2022 - 2026
Georgia State University

Lab Instructor of: Astronomy-1020 — Stars and Galaxies, Astronomy-1010 — Solar System, Physics-1111K — Intro Physics I

TA — Grader and proctor Fall 2019
Facultad de Ciencias de la Tierra y el Espacio Calculus I-II for Geoinformatics and Geodesic Engineering degrees.

Tutor — Astronomy major 2018 - 2020
In-campus tutor for: Fundamentals of Astronomy, Programming I & II (Labs), Introduction to Astrophysics, Computational Astrophysics I (Lab).

Mentoring

Ella Roselli, GSU Grad student Spring 2026 - present
Project: *Metallicities and Fundamental Properties using CHIRON and TRES spectra*

Ben Tipton, GSU24', RECONS Post-bac Fall 2025 - present
Project: *Spectral Energy Distributions and Space Kinematics of 4466 K dwarfs in the RKSTAR Catalog*

Publications

First & Second author

- Hubbard-James, H. S., **Carrazco-Gaxiola, S.**, Henry, T. J., et al. (2026). The Solar Neighborhood LV: Spectral Characterization of an Equatorial Sample of 580 K Dwarfs. *The Astronomical Journal*, 171(3), 175.

Contributed

- Anugu, N., Klement, R., Monnier, J. D., et al. (2026). Detection and Astrometry of the Ba–Bb Subsystem in α Piscium: First Dual-field Interferometry at the CHARA Array. *The Astronomical Journal*, 171(4), 253.
- Wilson, T. G., Simpson, A. M., Collier Cameron, A., et al. (2026). Gas-depleted planet formation occurred in the four-planet system around the red dwarf LHS 1903. *Science*, eadl2348.
- Barber, M. G., Mann, A. W., Vanderburg, A., et al. (2026). TESS Investigation—Demographics of Young Exoplanets (TI-DYE). IV. A Jovian-radius Planet Orbiting a 34 Myr Sun-like Star in the Vela Association. *AJ*, 171(1), 20.
- Bentz, M. C., Brown, R., Carrazco-Gaxiola, S., et al. (2025). R-Band Monitoring of Patroclus and Menoetius Mutual Events. *Minor Planet Bulletin*, 52(1), 79–81.
- Luque, R., Osborn, H. P., Leleu, et al. (2023). A Resonant Sextuplet of Sub-Neptunes Transiting the Bright Star HD 110067. *Nature*, 623(7989), 932–937.
- Barkaoui, K., Timmermans, M., Soubkiou, A., et al. (2023). TOI-2084 b and TOI-4184 b: Two New Sub-Neptunes Around M Dwarf Stars. *Astronomy & Astrophysics*, 677, A38.

Presentations

Contributed Talks

- Carrazco Gaxiola, S. et al. (2026). *An All-Sky Spectroscopic Reconnaissance of more than 2100 K Dwarfs within 40 Parsecs using High-Resolution Spectra* **247rd AAS Meeting, Phoenix, AR.**, In-Person
- Carrazco Gaxiola, S. et al. (2025). *Chromospheric Activity, Lithium, and Rotational Velocities Among 1600 K dwarfs within 40 pc* **Know Thy Star Know Thy Planet 2, Pasadena, CA.**, In-Person

Invited Talks

- Carrasco Gaxiola, S. et al. (2026). *A Volume-Complete All-Sky Spectroscopic Census of More Than 2,100 Nearby K Dwarfs: Insights from the RKSTAR Project*. **Press release, 247rd AAS Meeting, Phoenix, AR.**, In-Person

Posters

- Carrasco Gaxiola, S. et al. (2024). *Identifying Young and Active Stars Among the Nearest 1500 K Dwarfs within 40 Parsecs with the CHIRON Spectrograph*. **Cool Stars 22, San Diego, CA.**, In-Person
- Carrasco Gaxiola, S. et al. (2024). *Identifying Young and Active Stars Among the Nearest 1500 K Dwarfs within 40 Parsecs with the CHIRON Spectrograph*. **243rd AAS Meeting, New Orleans, LA.**, In-Person
- Carrasco-Gaxiola, J. S., et al. 2021. Sample of White Dwarfs to Search for Transiting Exoplanets from OAN-SPM. RMxAC, 55, 93. **III Congreso Latinoamericano de Astrobiología** (Online)

Awarded Telescope Time

FLWO Tillinghast 1.5m telescope, Chile 2025-present
Co-I of 15 **Awarded** nights using the TRES Spectrograph

Observing Experience

FLWO Tillinghast 1.5m telescope, Chile 2023-2025
Co-I of 15 **Awarded** nights using the TRES Spectrograph

SMARTS CTIO 1.5m telescope, Chile 2023-2025
21 nights using the CHIRON Spectrograph, classical mode

APO ARC 3.5m telescope, Chile 2025
3 half-nights using the ARCES spectrograph, classical mode

SMARTS CTIO 0.9m telescope, Chile 2023
11 nights using CCD camera, classical mode

OAN-SPM SAINT-EX 1.0m telescope, Mexico February - June 2022
60 half-nights CCD camera (remote)

INAOE Guillermo Haro Observatory, Cananea, Mexico November 2017 - December 2018
13 nights using NIR CCD camera, classical mode

Technical Skills

- **Programming Languages:** Python, LaTeX, SQL, Bash, IDL
- **Software:** IRAF, PyRAF, AstroPy, Matplotlib, TOPCAT, Jupyter, Microsoft Office
- **Observational Tools:** Echelle Spectroscopy, CCD cameras, 1.5m, 0.9m, 2.12m telescopes
- **Data Analysis:** Spectroscopic Analysis, Data Reduction, Time Series Analysis, Data Quality Control
- **Languages:** English (Fluent), Spanish (Native)

Awards and Grants

Outstanding Graduate Student Astronomy (\$500 prize) 2025
Georgia State University, Atlanta, GA

Paris Pişmiş Award for Outstanding Undergraduate Student in Astronomy 2022
Instituto de Astronomía, UNAM, Mexico City

Best Undergraduate Research Poster Presentation Award 2019
Universidad Autónoma de Sinaloa, Culiacán, Sinaloa